SteelMint®

Iron Ore index methodology

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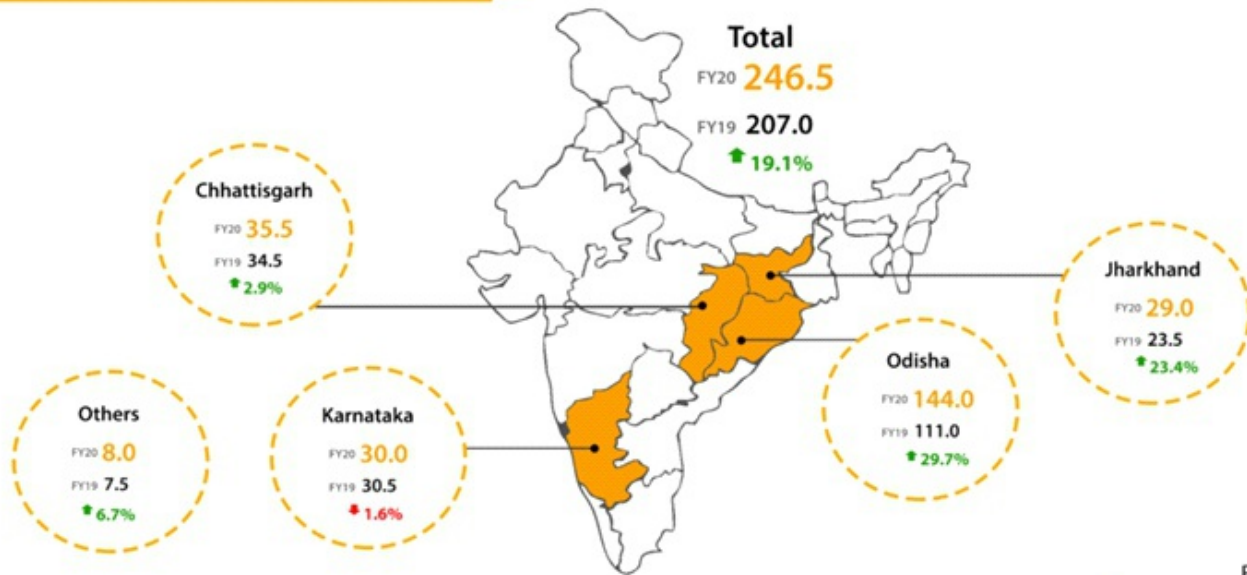# Methodology: India weekly domestic Iron Ore fines and lump assessment

Introduction

SteelMint's credible prices have been serving as a benchmark for manufacturers, buyers and traders in the steel industry to settle contracts or to understand the market cost of physical supply of commodities like iron ore. We have created comprehensive and robust methodologies to ensure accurate assessment of iron ore prices in the country which are governed by SteelMint's standards of compliance with the public and our stakeholders. These methodologies conform to the market dynamics of specific regions and hence in case of iron ore, different geographies entail different approaches and customised methodology of price assessment. These would be covered in detail under each region below.

India is world's fourth largest iron ore producer after Australia, Brazil and China. In FY'20, India's iron ore production stood at around 245 mn t.

India Iron Ore Production in FY19 & FY20

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Total
FY20 **246.5**
FY19 **207.0**
▲ **19.1%**

Chhattisgarh
FY20 **35.5**
FY19 **34.5**
▲ **2.9%**

Jharkhand
FY20 **29.0**
FY19 **23.5**
▲ **23.4%**

Others
FY20 **8.0**
FY19 **7.5**
▲ **6.7%**

Karnataka
FY20 **30.0**
FY19 **30.5**
▼ **1.6%**

Odisha
FY20 **144.0**
FY19 **111.0**
▲ **29.7%**

Source: SteelMint

Provisional data
Quantity in MnT

Data collection

Our analysts contact the widest range of market participants, including all major iron ore producers and trading firms engaged in domestic trading. There is a continuous review of the credibility and timeliness of information provided by various market participants with unreliable information providers weeded out of the data collection process. Analysts reach out to contacts through a variety of means such as telephone calls, email and messenger platforms such as WhatsApp. Market participants are also encouraged to provide relevant trading information to Steelmint electronically or via a phone call.

Hierarchy of data

The highest importance in the price calculation process is assigned to confirmed deals where either a buyer or seller has provided details of the transaction. Deals of only reputed and trustworthy producers and trading firms are included in the price collection and calculation process. Confirmed bids and offers are also considered valuable for the pricing process. In periods when market activity is sluggish, analysts will poll market participants for indicative or tradable price levels for that day.

Transaction data threshold

Steelmint does not impose a minimum transaction threshold for arriving at an assessment as an arbitrary imposition of minimum market data may not truly reflect fundamentals due to the impact of seasonality on supply and demand conditions.

Odisha - Assessment Details

Overview

- India's eastern state of Odisha is the largest iron ore producer in the country with around 150 mn t output in the 2019-20 fiscal year. Several large steel producers such as SAIL, JSW Steel, Tata Steel, AM/NS India and JSPL own mines in the state while merchant miners such as Rungta, Serajuddin, Essel and KJS Ahluwalia supply ores to domestic and export markets. Given the primacy of Odisha in India's iron ore sector, price trend in the state sets the tone for prices in rest of India's ore markets. The Odisha iron ore price is the best suited to be a proxy for a pan-Indian iron ore price.

- Share of fines in Odisha's production is ~60% and rest 40% is lumps. Steelmint assesses Odisha's fines and lump cargoes traded in the domestic open market. It does not consider transactions where steel producers sell ore from the mines to their steel-making subsidiaries, though open market sale of ores by such steel makers are included in price calculation.

Record keeping

Records of price sheets used in assessment, calculation, rationale and notes taken by reporters during the data collection and discussion process with contacts are stored securely in physical or electronic forms for a reasonable period of time.

Frequency of assessments

The frequency varies with each assessment and is indicated against each. This has been derived after due deliberations with various stake holders and market participants. It is not sacrosanct and is subject to change based on market inputs as well as feedback from market participants.

Assessments

Sub Commodity	Delivery Terms	Size & Grade	Min Qty	Payment Terms	Delivery Period	Publication Date & Time	Remarks
Odisha Iron Ore Index	Ex-Mines	5 -18 mm, Fe 63%, DR Grade	3,000 t	Advance Payment	2-4 Weeks	Saturday at 16:00 IST	All the prices include royalty, DMF and NMET charges.

Excluding GST, cessetc.

Prices however do not include freight and loading charges.

Some auctions, such as for SAIL iron ore, do not include royalty, DMF and NMET payouts. |
Odisha Iron Ore Index	Ex-Mines	10-30mm, Fe 63%, BF Grade	3,000 t	Advance Payment	2-4 Weeks	Saturday at 16:00 IST	
Odisha Iron Ore Index	Ex-Mines	0-10 mm, Fe 63%	10,000 t	Advance Payment	2-4 Weeks	Saturday at 16:00 IST	
Odisha Iron Ore Index	Ex-Mines	0-10mm, Fe 62%	10,000 t	Advance Payment	2-4 Weeks	Saturday at 16:00 IST	
Odisha Iron Ore Index	Ex-Mines	0-5mm, Fe 57%	10,000 t	Advance Payment	2-4 Weeks	Thursday at 18:00 IST	

Price calculation method

Data Collection: Detailed interaction with market participants like miners, traders and end users is done to discover the transactions, indicative prices, offers and bids. Auction results of SAIL, OMC private mines are invariably obtained, are considered in overall price determination.

Normalisation : SteelMint normalizes the submissions according to typical values of sample type, chemical specifications, payment terms etc. SteelMint shall take into consideration the bid prices of SAIL and Orissa Mining Corp (OMC) auctions after normalizing them in line with the specifications of index, provided the auctions have taken place in that week. However, in case of OMC, bid prices of Daitari and Koira region are taken into consideration. Other main chemicals contained within submissions (such as Silica, Alumina, Sulphur, Phosphorus and moisture) that are beyond the permissible SteelMint Index standard ranges will be excluded from the normalization procedure.

Outliers: SteelMint adopts 'standard deviation' approach to eliminate the outliers of data sets seen in price collection. The normalized values are collated and the mean value is determined. The values lying outside the Mean + Variance upper limit) and Mean - Variance (lower limit) are discarded or the purpose of price discovery. SteelMint uses volume weighted approach for confirmed trades and simple average for bids/offers/indicative prices. To arrive at final index, simple average is taken by giving 50% weightage to trades (T1) and 50% to offers, bids and indicative/tradable prices (T2).

Example: For instance, we have data points - 101, 102, 110, 115 and 130. On computing standard deviation data point of 130 will be considered as outlier and hence will be removed from final index calculation. SteelMint shall compute index following similar methodology and concerned analyst shall have the final judgement of including/excluding a data set for computing final index.

Exercise of expertise judgement: During times of market stress, disruption or low market liquidity, SteelMint retains the right to use Expert Judgement whereinsufficient submissions have been received, including referring to other market information such as supply and demandfundamentals, and other factors that affect the iron ore price.

Karnataka - Assessment Details

Overview

India's southern state of Karnataka, home to several steel producers and iron ore mines, conducts periodic, state-run e-auctions for sale of iron ore to buyers in the state. These e-auctions cover a wide range of Fe grades for fines and lump. Steelmint assesses the average monthly price of 60pc basis fines and 63pc basis lump, based on actual transactions concluded in auctions in a particular month. The price information on concluded deals is provided by the Karnataka state government on its official website.

Assessments

Price calculation method

A weighted average price of transactions for fines in the 55 - 63 % Fe grades is calculated from the pool of deals for a month. Deals with Fe grades lower than 58 % and higher than 63 % are not considered for price calculation.

The weighted price (WP) of each transaction is calculated on the basis of the formula - price x Allotted Quantity (AQ).

Allotted quantity (AQ) refers to the quantity actually sold by the seller at the given price and not the quantity that was bid for.

The WPs of all transactions included in the final price calculation are added up. The Weighted Average Price (WAP) for the auction is calculated by the formula - Total WP / Total AQ.

The average Fe grade is also calculated on a weighted average basis with the formula - Fe % of transacted lot x AQ to arrive at the Weighted Grade (WG). The WG of all the deals are added up and divided by the total AQ to produce the Weighted Average Grade (WAG) of the auction.

The 60 % Fe basis fines price is calculated with the formula - WAP / WAG x 60

A similar calculation is followed for the 63 % Fe lump transaction, which includes deals with 57% to 66% Fe grades.

Sub Commodity	Delivery Terms	Size & Grade	Min Qty	Payment Terms	Delivery Period	Publication Date & Time	Remarks
Fines/Lumps	E-auction, Karnataka	10-20 mm, Fe 63%,	1000 to 4000 MT	Advance Payment	3 weeks	10th of every month at 17:30 IST	Basic prices, royalty & DMF extra
Fines/Lumps	E-auction, Karnataka	0 -5 mm, Fe 60%	1000 to 4000 MT	Advance Payment	3 weeks	10th of every month at 17:30 IST	

Chhattisgarh - Assessment Details

Overview

India's largest Iron ore producer NMDC has one of its major mines located in Chhattisgarh. They declare the prices for the iron ore every month or sometimes twice depending on market situation. NMDC's Chhattisgarh iron ore production is approximately 25 mn t per annum.   Key customers include JSW, Vizag steel, KIOCL from outside the state and a large number of state based units.

Assessments

Price calculation method

▪In case of these assessments from Chhattisgarh an elaborate price discovery process has not been deemed to be necessary. The prices as quoted in the NMDC price circular in turn get reflected as our assessments as well.

▪The parameters regarding grade, quantity, delivery and payment terms as per price circular of NMDC also conform to the SteelMint assessments as shown above, hence there in no need for normalisation process.

Miscellaneous Aspects - All Assessments

▪**Rationale publication-** A rationale for the assessment which will include a summary of the type and number of data points considered for price calculation and reasons for exclusion of deals, if any, are published on the day of publication of prices to provide transparency to the assessment process.

▪**Correction of assessments**- Steelmint will publish corrections of assessments if an error has resulted due to faulty entry of data or an unintentional omission of data point in the price calculation process. However, prices will not be corrected or updated in any manner if new deals or bids/offers become available after the weekly timestamp.

▪**Record keeping-** Records of price sheets used in assessment, calculation, rationale and notes taken by reporters during the data collection and discussion process with contacts are stored securely in physical or electronic forms for a reasonable period of time.

▪**Methodology review-** The basic purpose of any pricing process is to accurately reflect market fundamentals and as such the methodology is open to review as market conditions and modes of trading and pricing contracts change. Noticeable changes in chemical specifications and price components of openly-traded fines and lump cargoes will also trigger a review in Steelmint's methodology. Once editors and the management decide to review the methodology, sufficient time will be provided to external stakeholders to comment on the proposed methodology changes via email or other appropriate communication tools. Any final change to the methodology will only be made after completing an external consultation process.

Sub Commodity	Delivery Terms	Size & Grade	Min Qty	Payment Terms	Delivery Period	Publication Date & Time	Remarks
Fines/Lumps	NMDC, F.O.R. Siding	10-40 mm, Fe 67%, DR CLO	3800 MT	Advance Payment	2 - 4 weeks	As per company revision	FoR prices, Royalty, DMF, NMET, other taxes extra
Fines/Lumps	NMDC, F.O.R. Siding	0 -10 mm, Fe 64%	3800 MT	Advance Payment	2 - 4 weeks	As per company revision	

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